

## **REMARKS**

The Office Action dated July 2, 2007, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

By this Response, claims 4-5 have been amended to more particularly point out and distinctly claim the subject matter of the present invention. No new matter has been added. Support for the above amendments is provided in the Specification on at least page 7, line 7 to page 10, line 10. Accordingly, claims 1-3 having been allowed, claims 4-7 are currently pending in the application.

In view of the above amendments and the following remarks, Applicants respectfully request reconsideration and timely withdrawal of the pending objections and rejections to the claims for the reasons discussed below.

### ***Claim Rejections under 35 U.S.C. §102(b)***

The Office Action rejected claims 4 and 5 under 35 U.S.C. §102(b) as being allegedly anticipated by Bredeweg (U.S. Patent No. 4,050,995). The Office Action alleged that Bredeweg discloses every claim element recited in claims 4 and 5.

Claim 4 recites a water electrolysis method of determining a stable isotopic composition of water for performing mass spectrometry of one of a hydrogen stable isotopic composition and an oxygen stable isotopic composition. The method includes electrolyzing sample water without adding any electrolyte, separately extracting

hydrogen gas and oxygen gas to introduce them into an isotope ratio mass spectrometer, and conducting stable isotopic composition analysis of a hydrogen stable isotope and an oxygen stable isotope electrolyzed from the sample water.

Claim 5 recites a water electrolysis method of determining a stable isotopic composition of water. The method includes electrolyzing sample water without adding any electrolyte to extract oxygen gas, and directly analyzing an oxygen isotope  $^{17}\text{O}$  as a form of molecular oxygen electrolyzed from the sample water.

As will be discussed below, Bredeweg fails to disclose or suggest every claim feature recited in claims 4 and 5, and therefore fails to provide the features of the claims discussed above.

Bredeweg is directed to a cell for absorbing and electrolyzing water vapor transmitted from a sample used in an apparatus for rapidly determining a water vapor transmission rate through plastic films or like structures and water content in solid, liquid, and gaseous materials (Bredeweg, Abstract).

Applicants respectfully submit that Bredeweg fails to disclose or suggest every claim feature recited in claims 4 and 5. Specifically, Bredeweg fails to disclose or suggest at least “conducting stable isotopic composition analysis of a hydrogen stable isotope and an oxygen stable isotope contained in the sample water” as recited in claim 4, and at least “wherein electrolyzing comprises directly analyzing an oxygen isotope  $^{17}\text{O}$  as a form of molecular oxygen electrolyzed from the sample water” as recited in claim 5.

Rather, Bredeweg discloses a mass spectrometer used to determine a water vapor transmission rate or water content of a sample, in addition to, determining a transmission rate of gases such as oxygen, nitrogen, or carbon dioxide through a sample. (Bredeweg, col. 3, lines 4-20)

The Office Action improperly concluded that “since the gas is being transferred into the mass spectrometer for analysis, it appears that the gases will inherently be analyzed for hydrogen or oxygen isotopes” (See Office Action on page 2, paragraph 2).

In relying upon the theory of inherency, the Office Action must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the prior art. *Ex parte Tanksley*, 37 USPQ2d 1382, 1385 (Bd. Pat. App. & Int’f 1994). Further, MPEP §2112 states that “To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill in the art.” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d, 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

The Office Action failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that “conducting stable isotopic composition analysis of a hydrogen stable isotope and an oxygen stable isotope contained in the sample water” or “directly analyzing an oxygen isotope <sup>17</sup>O as a form of molecular oxygen electrolyzed from the sample water” are inherent characteristics that necessarily

flow from the type of mass spectrometer disclosed in Bredeweg. The Office Action further failed to meet its burden of illustrating that “conducting stable isotopic composition analysis of a hydrogen stable isotope and an oxygen stable isotope contained in the sample water” or “directly analyzing an oxygen isotope  $^{17}\text{O}$  as a form of molecular oxygen electrolyzed from the sample water” is necessarily present in the teachings of Bredeweg, such that one of ordinary skill in the art at the time the invention was made would have recognized such an inherency. Therefore, Bredeweg fails to disclose or suggest every claim element recited in amended claims 4 and 5.

Therefore, Applicants respectfully request withdrawal the rejections of claims 4 and 5 under 35 U.S.C. §102(b), and respectfully submit that claims 4 and 5 are now in condition for allowance.

***Claim Rejections under 35 U.S.C. §103(a)***

The Office Action rejected claims 4 and 5 under 35 U.S.C. §103(a) as allegedly being unpatentable as obvious over Amirav, *et al.* (U.S. Patent Publication No. 2002/0054832) (“Amirav”) in view of Merren (U.S. Patent No. 6,297,501) (“Merren”).

As will be discussed below, Amirav in view of Merren fails to disclose or suggest every claim feature recited in claims 4 and 5, and therefore fails to provide the features of the claims discussed above.

Amirav is directed to a gas chromatography method for analyzing material vaporizable in a gas chromatograph system. The system includes an electrolyzer-

operated gas-cylinder free gas chromatograph having a flame ionization detector.  
(Amirav, page 1, paragraph [0006])

Merren is directed to a mass spectrometer and a method of mass spectrometry that is especially useful for the measurement of the isotopic composition of hydrogen in the presence of a helium carrier gas. (Merren, col. 3, lines 33-62)

Assuming *arguendo* that the teachings of Amirav and the teachings of Merren could be combined, the combination of Amirav and Merren fails to disclose or suggest every claim feature recited in claims 4 and 5. Specifically, Amirav in view of Merren fails to disclose or suggest at least “conducting stable isotopic composition analysis of a hydrogen stable isotope and an oxygen stable isotope contained in the sample water” as recited in claim 4, and at least “directly analyzing an oxygen isotope  $^{17}\text{O}$  as a form of molecular oxygen electrolyzed from sample water” as recited in claim 5 (emphasis added).

As noted in the Office Action, Amirav fails to disclose or suggest every claim feature recited in claims 4 and 5 (See Office Action on page 3, paragraph 4). The Office Action cited Merren to cure the deficiencies of Amirav.

Applicants respectfully submit that Merren fails to cure the deficiencies of Amirav. Merren discloses a mass spectrometer suitable for determination of hydrogen isotopic ratios in the presence of helium gas. (Merren, col. 3, lines 25-27) Merren fails to disclose or suggest determination of “an oxygen stable isotope”. Therefore, Amirav in view of Merren fails to disclose or suggest every claim feature recited in claims 4 and 5.

Claim 6 depends from claim 4. Claim 7 depends from claim 5. Accordingly, claims 6 and 7 should be allowable for at least their dependency upon an allowable base claim.

Therefore, Applicants respectfully request withdrawal the rejections of claims 4 and 5 under 35 U.S.C. §103(a), and respectfully submit that claims 4 and 5, and the claims that depend therefrom, are now in condition for allowance.

***Allowable Subject Matter***

The Office Action indicated that claims 1-3 are allowable over the prior art of record.

The Office Action objected to claims 6 and 7 as being allegedly dependent upon a rejected base claim. As discussed above, claims 6 and 7 depend from allowable claims 4 and 5, respectively, and therefore should be in condition for allowance.

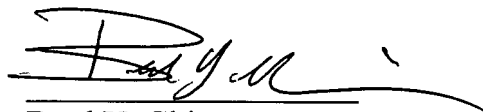
## CONCLUSION

In conclusion, Applicants respectfully submit that Bredeweg, Amirav, and Merren fail to disclose or suggest every claim feature recited in claims 1-7. Applicants thank the Examiner for allowing claims 1-3, and indicating that claims 6 and 7 contain allowable subject matter. It is therefore respectfully requested that all of claims 1-7 be allowed, and this present application passed to issuance.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, Applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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